

New records of the genus *Anaides* Westwood, 1842 (Coleoptera, Hybosoridae, Anaidinae) from the Chocó Biogeographic Region of Colombia

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Abstract. During a recent expedition in the moist lowland Chocó forests from Colombia, three species of *Anaides* Westwood, 1842 were collected. These specimens represent important extensions to their distribution and are notable records for the Chocó Biogeographic Region of Colombia, and for the country itself. *Anaides fossulatus* Westwood, 1842 is recorded for the first time in the Colombian Chocó region, *Anaides planus* Ocampo, 2006 is confirmed for Colombia, and the distribution of *Anaides longeciliatus* Balthasar, 1938 is extended to Colombia.

Key words. Distribution, Neotropics, Scarabaeoidea, Serranía del Baudó

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INTRODUCTION

The subfamily Anaidinae (Coleoptera, Hybosoridae) comprises six extant genera and 64 species, including three fossil species (Ocampo 2006b, 2021; Ocampo and Ballerio 2006; Costa-Silva and Vaz-de-Mello 2023; Schoolmeesters 2023). All extant species are exclusively recorded from New World, with the second richest genus being *Anaides* Westwood, 1842, composed of 15 species recorded from Mexico to Bolivia, Brazil, and the West Indies (Barbados, Trinidad and Tobago, and Dominican Republic, which has one fossil in amber) (Ocampo 2006a, 2021).

In Colombia, nine species from five genera of Anaidinae have been reported (Table 1), of which only two species of *Anaides* have been confirmed for the country: *Anaides fossulatus* Westwood, 1842 and *Anaides onofrii* Ocampo, 2006 (Ocampo 2006a). The few contributions to this subfamily, except for the Ocampo's study (2006a), lack confidence in the taxonomic determinations, such as identification only at the genus level or dubious records presented in ecological studies (Howden and Nealis 1975; Escobar 1997; Orozco and Pérez 2007; Otavo et al. 2013). Nevertheless, "*Anaides* aff. *planus* Ocampo, 2006" (as mentioned by authors) was reported in a catalog of the Scarab beetles from the Department of Chocó (Neita-Moreno 2006), making it necessary to confirm if it is indeed *Anaides planus* or a different morphologically close morphotype.

A recent expedition to a single locality in the humid lowland forest of the Chocó region, whose main aim was to collect biological indicator insects (dung beetles (Scarabaeinae), butterflies, and ants), also resulted in the collection of three species of *Anaides*. The new records presented herein represent important extensions to the distribution of the involved species, as well as important records for the Chocó Biogeographic Region of Colombia, and for the country itself.

METHODS

New records of the species from the Chocó Biogeographic Region of Colombia are from a recent expedition during 2022 in the municipality of Alto Baudó (05°42'N, 076°59'W) in the Department of Chocó,



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Table 1. Genera and species of Anaidinae from Colombia.

Taxa	Source
<i>Anaides</i> Westwood, 1842	
<i>Anaides fossulatus</i> Westwood, 1842	Ocampo 2006
<i>Anaides longeciliatus</i> Balthasar, 1938	This study
<i>Anaides onofrii</i> Ocampo, 2006	Ocampo 2006
<i>Anaides planus</i> Ocampo, 2006	This study
<i>Callosides</i> Howden, 1971	
<i>Callosides campbelli</i> Howden, 1971	Ocampo 2006
<i>Chaetodus</i> Westwood, 1845	
<i>Chaetodus (Chaetodopsis) asuai</i> Martínez, 1956	Ocampo 2006
<i>Chaetodus (Chaetodopsis) tricarinatus</i> Ocampo, 2006	Ocampo 2006
<i>Chaetodus (Chaetodus) columbicus</i> Petrovitz, 1970	Ocampo 2006
<i>Chaetodus (Chaetodus) teamscaraborum</i> Ocampo, 2006	Ocampo 2006
<i>Cryptogenius</i> Westwood, 1842	
<i>Cryptogenius westwoodi</i> Costa-Silva & Vaz-de-Mello, 2023	Costa-Silva and Vaz-de-Mello 2023
<i>Totoia</i> Ocampo, 2003	
<i>Totoia brachycarina</i> Ocampo, 2003	Ocampo 2006

western Colombia. Specimens were collected using 24 pitfall traps baited with human feces, each being active for 72 hours; traps were installed during July 2022. The species were identified following the descriptions and identification key from Ocampo (2006a).

Additional records of these species from Colombia were obtained from: Colección de Escarabajos Coprófagos de Colombia Alejandro Lopera Toro – **CECC-ALT** (Bogotá D.C., Colombia), Colección Entomológica del Museo de Historia Natural, Instituto de Ciencias Naturales, Universidad Nacional de Colombia – **ICN-E** (Bogotá D.C., Colombia); Museo Entomológico de la Universidad del Valle – **MUSENUV** (Cali, Valle del Cauca, Colombia); Museo Laboratorio de Entomología de la Universidad del Tolima – **MENT-UT** (Ibagué, Tolima, Colombia); and Sección de Entomología de las Colecciones Biológicas del Instituto de Investigación de Recursos Biológicos Alexander von Humboldt – **IAvH-E** (Villa de Leyva, Boyacá, Colombia). Previous records of the species were obtained from Ocampo (2006a).

Photographs were taken with a Leica S8 APO stereomicroscope equipped with a Leica MC190HD camera. The distribution map was produced using QGIS v. 3.26. Images were cleaned and arranged into figures in Photoshop v. 21.2.0.

RESULTS

During the expedition to a locality in the Chocó Biogeographic Region, in the municipality of Alto Baudó, three species of *Anaides* were collected, all representing interesting records. The first identified species, *Anaides fossulatus* Westwood, 1842, represent a new distributional record from the Chocó Region. This is particularly interesting because this species is normally found in dry areas, such as noted in records presented by Ocampo (2006a) from Venezuelan Orinoquía. Additionally, we report the first record of *Anaides longeciliatus* Balthasar, 1938 from Colombia, and confirm the presence of *Anaides planus* Ocampo, 2006 from the Colombian Chocó Biogeographic Region.

Anaides fossulatus Westwood, 1842

Figures 1, 4

New records from the Chocó Biogeographic Region of Colombia (6 examined specimens). COLOMBIA – **CHOCÓ** • Juradó, Comunidad indígena Alto Río Juradó; 07°09'42.71"N, 077°46'08.45"W; 48 m alt.; 15.IX.2017; palacios L. leg.; pitfall trap with human feces; forest; 1 unsexed, IAvH-E-215217 • Parque Nacional Natural Los Katios, Centro administrativo Sautatá; 07°51'N, 077°80'W; 30 m alt.; 20.XI–05.XII.2003; López P. leg.; Malaise; open forest; 1 ♀, IAvH-E-215220 • Alto Baudó, Corregimiento Chachajo, Quebrada Muertero; 05°42'15.739"N, 076°59'44.606"W; 150 m alt.; 06–08.VII.2022; Hurtado H.S., Rentería Y., Murillo D., Rengifo L., Cárdenas-Bautista J.S., Palacios R. leg.; pitfall trap with human feces #s2p5 72h; rainy central forest; 1 ♀, IAvH-E-256908 • Alto Baudó, Corregimiento Chachajo, Quebrada Muertero; 05°42'16.038"N, 076°59'47.004"W; 138 m alt.; 06–08.VII.2022; Hurtado H.S., Rentería Y., Murillo D., Rengifo

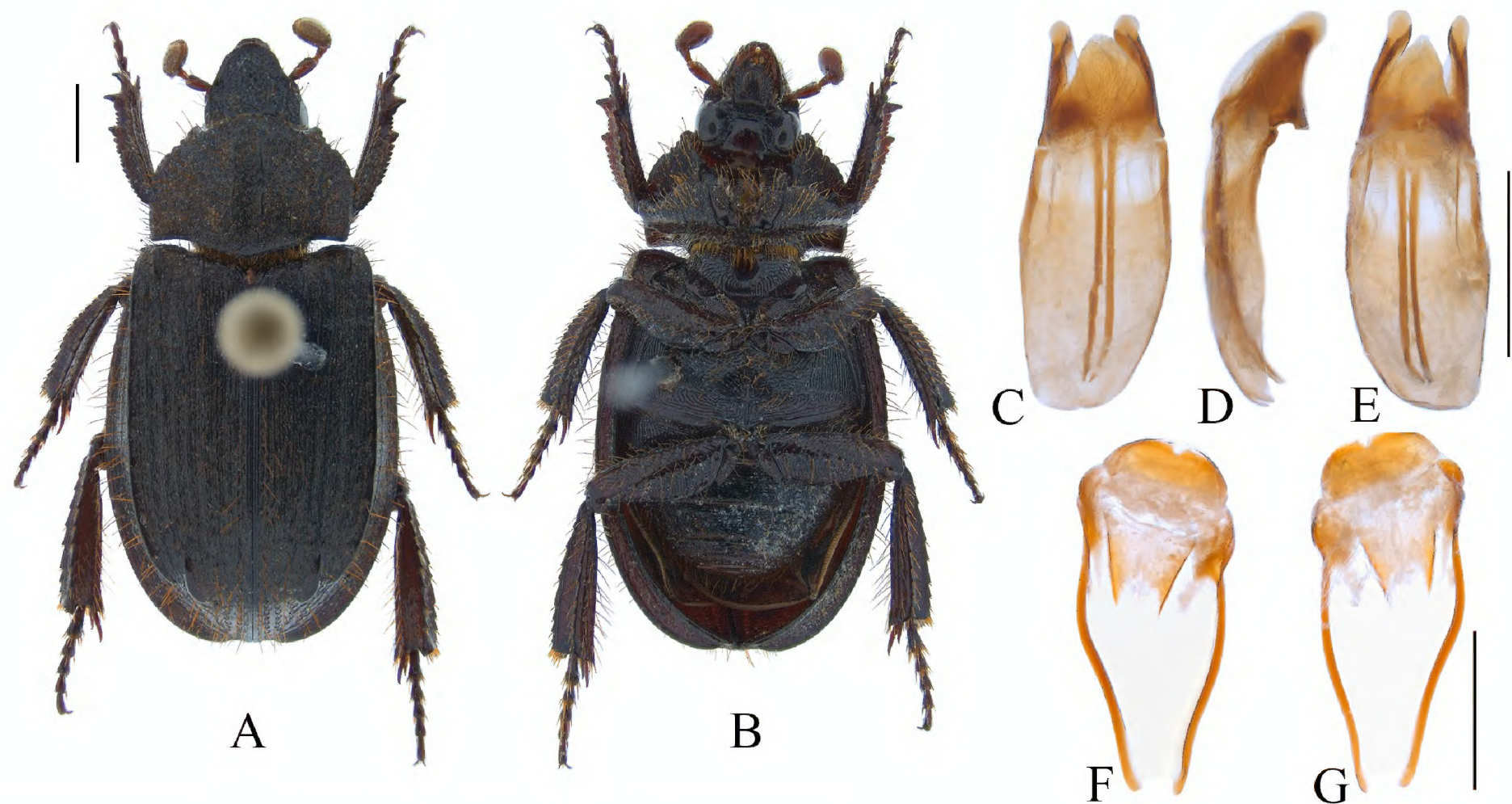


Figure 1. *Anaides fossulatus* (IAvH-E-256913). **A.** Dorsal view. **B.** Ventral view. **C.** Aedeagus, dorsal view. **D.** Aedeagus, lateral view. **E.** Aedeagus, ventral view. **F.** Spiculum gastrale, dorsal view. **G.** Spiculum gastrale, ventral view. Scale bars: 0.5 mm.

L., Cárdenas-Bautista J.S., Palacios R. leg.; pitfall trap with human feces #s2p6 24h; rainy central forest; 2 ♂, IAvH-E-256919–20 • Alto Baudó, Corregimiento Chachajo, Quebrada Muertero; 05°42'18.979"N, 076°59'55.280"W; 98 m alt.; 10–12.VII.2022; Hurtado H.S., Rentería Y., Murillo D., Rengifo L., Cárdenas-Bautista J.S., Palacios R. leg.; pitfall trap with human feces #s3p6 24h; rainy central forest; 1 ♂, IAvH-E-256921.

Additional new records from Colombia (98 examined specimens). COLOMBIA – **ANTIOQUIA** • Puerto Triunfo, Finca El Paujil; 05°52'51.6"N, 074°41'34.79"W; 184 m alt.; 08.IX.2018; Medina C.A. leg.; pitfall trap with human feces T5(24h); forest; 2 ♀, 2 ♂, IAvH-E-215351–52, 215356, 215360 – **ATLÁNTICO** • Piojó, Finca Cielo Lirio; 10°44'59.15"N, 075°09'43.59"W; 60 m alt.; XI.2016; Lopera A., Chamorro W. leg.; pitfall trap with human feces; tropical dry forest; 1 ♂, CECC-ALT • Piojó, Finca Palomar; 10°45'53.4"N, 075°09'32.5"W; 187 m alt.; 14–18.X.2013; Lopera A., Martínez D. leg.; pitfall trap with human feces; forest; 1 ♂, CECC-ALT – **BOLÍVAR** • Santuario de Flora y Fauna Los Colorados; 09°51'33"N, 073°06'38"W; 300 m alt.; 01.VIII.1996; Escobar F. leg.; Malaise; tropical dry forest; 1 ♂, IAvH-E-021991 • Santuario de Flora y Fauna Los Colorados, Villa Roca; 09°54'N, 075°70'W; 180 m alt.; 21.VIII.2001; Deulufeut E. leg.; pitfall trap; 1 ♂, IAvH-E-215214 – **BOYACÁ** • Puerto Boyacá, Reserva El Paujil; 06°20'39.4"N, 074°16'0.999"W; 206 m alt.; 02.II.2019; Ramírez M. leg.; pitfall trap with human feces 9(24h); forest; 1 ♂, IAvH-E-215296 • Puerto Boyacá, Reserva El Paujil; 06°20'39.4"N, 074°16'0.999"W; 206 m alt.; 03.II.2019; Ramírez M. leg.; pitfall trap with human feces 9(48h); forest; 1 ♂, IAvH-E-215297 • Puerto Boyacá, Reserva El Paujil; 06°20'39.4"N, 074°16'0.999"W; 206 m alt.; 05.II.2019; Ramírez M. leg.; pitfall trap with human feces 9(96h); forest; 1 ♂, IAvH-E-215295 – **CALDAS** • Norcasia, Vereda San Roque, Reserva Natural Río Manso; 05°39'40"N, 074°46'9.8"W; 160–220 m alt.; 06–08.VIII.2004; González E., Arango L., Montes A. leg.; pitfall trap #10; forest; 1 ♂, IAvH-E-215221 – **CASANARE** • Aguazul, Vereda Unete, Englobe CPF Cupiagua, Quebrada La Chota; 05°12'47.6"N, 072°36'10.2"W; 366 m alt.; 27–28.II.2021; Cardenas-Bautista J., Torres M. leg.; pitfall trap with human feces #CHC1 48h; tropical dry forest; 1 ♂, IAvH-E-254108 • Yopal, Salitre; 400–600 m alt.; 27–31.III.1996; Lopera A. leg.; pitfall trap with human feces 48T3; tropical dry forest; 1 ♂, CECC-ALT • Yopal, Santiago de Atalaya; 400–600 m alt.; 27–31.III.1996; Lopera A. leg.; pitfall trap with human feces T4(48h); tropical dry forest; 1 ♂, IAvH-E-111064 – **CUNDINAMARCA** • Beltrán, Ins. Paquilo, F. Santana; 04°39'41.6"N, 074°46'39.4"W; 295 m alt.; XI.2014; Lopera A. leg.; subxerophytic scrub; 1 ♀, 4 ♂, CECC-ALT • San Juan de Rioseco; 1300 m alt.; 12.X.1997; pulido-Riveros leg.; tropical dry forest; 3 ♂, IAvH-E-215218–19, CECC-ALT – **LA GUAJIRA** • Distracción, Finca El Corralito; 11°01'27.28"N, 072°57'14.22"W; 740 m alt.; IX.2016; Lopera A., Chamorro W. leg.; light trap; tropical dry forest; 6 ♀, 11 ♂, CECC-ALT • Distracción, Finca El Corralito; 11°01'11.78"N, 072°57'10.34"W; 747 m alt.; IX.2016; Lopera A., Chamorro W. leg.; pitfall trap with human feces; tropical dry forest; 3 ♀, 5 ♂, CECC-ALT • Riohacha, Finca Campo Bernal; 11°04'34.0"N, 073°02'02.0"W; 194 m alt.; IX.2016; Lopera A., Chamorro W. leg.; flight interception trap; tropical dry forest; 1 ♂, CECC-ALT – **HUILA** • Neiva, Vereda Tamarindo, Ecoreserva La Tribuna; 03°04'02.6"N, 075°22'51.7"W; 649 m alt.; 11–14.XII.2019; Castro M. I. leg.;

pitfall trap with human feces #T3C5; tropical dry forest, early passive regeneration; 1 ♂, IAvH-E-256922 • Neiva, Vereda Tamarindo, Ecoreserva La Tribuna; 03°04'04.1"N, 075°22'45.9"W; 613 m alt.; 11–14.XII.2019; Castro M.I. leg.; pitfall trap with human feces #T4C3; tropical dry forest, early passive regeneration; 3 ♂, IAvH-E-254106, 254110–11 • Neiva, Vereda Tamarindo, Ecoreserva La Tribuna; 03°04'01.7"N, 075°22'42.2"W; 591 m alt.; 11–14.XII.2019; Castro M. I. leg.; pitfall trap with human feces #T4C4; tropical dry forest, early passive regeneration; 1 ♀, IAvH-E-254112 – **MAGDALENA** • Ciénaga, Reserva Natural El Congo; 10°59'36.56"N, 074°04'1.94"W; 700 m alt.; IV.1997; Lopera Alejandro leg.; pitfall trap with human feces; lower montane forest; 1 ♂, CECC-ALT • Ciénaga, Reserva Natural El Congo; 10°59'36.56"N, 074°04'1.94"W; 700 m alt.; IV.1997; Lopera Alejandro leg.; pitfall trap with centipede carcasses; lower montane forest; 1 ♂, CECC-ALT • Parque Nacional Natural Tayrona; 11°17'41"N, 074°06'15"W; 155 m alt.; 01–30.IX.1996; Escobar F. leg.; T1t3; tropical dry forest; 1 ♀, IAvH-E-215204 • Parque Nacional Natural Tayrona; 11°17'41"N, 074°06'15"W; 155 m alt.; 01–30.IX.1996; Escobar F. leg.; transect 2 trap 2; tropical dry forest; 1 ♀, 1 ♂, IAvH-E-215205–06 • Parque Nacional Natural Tayrona; 11°17'41"N, 074°06'15"W; 155 m alt.; 01–30.IX.1996; Escobar F. leg.; transect 2 trap 2; tropical dry forest; 1 ♂, IAvH-E-215207 • Parque nacional natural Tayrona, Neguanje; 11°17'41"N, 074°06'15"W; 155 m alt.; 01–30.IX.1996; Escobar F. leg.; pitfall trap with human feces; tropical dry forest; 3 ♀, 2 ♂, IAvH-E-021988–90, 021992–93 • PNN Tayrona, Cañaveral, Los Naranjos; 11°20'N, 074°02'W; 30 m alt.; 23–26.VII.2002; Sharkey M., Arias D., Torres E. leg.; pantrap; 1 ♂, IAvH-E-254109 – **META** • Parque Nacional Natural Tinigua, Río Duda; 02°40'N, 074°10'W; 350 m alt.; 01.V.1994; Alvarez M. leg.; 1 ♀, IAvH-E-021987 – **RISARALDA** • Pereira, Vereda Cerritos, Hacienda Alejandría; 04°51'27"N, 075°52'49"W; 1000 m alt.; 02.XI.2004; Bustamante S. leg.; pitfall trap with tuna 8; 1 ♀, IAvH-E-215223 • Pereira, Vereda Cerritos, Hacienda Alejandría; 04°51'27"N, 075°52'49"W; 1000 m alt.; 10.XI.2004; Bustamante S. leg.; pitfall trap 78; 1 ♂, IAvH-E-215222 – **SANTANDER** • Cimitarra, Vereda Guineal; 06°05'59.12"N, 074°12'48.90"W; 503 m alt.; 17–18.VII.2018; Neita J.C., Lopera A., Torres E., Castro M.I. leg.; pitfall trap with human feces T9(48h); forest; 1 ♂, IAvH-E-215216 – **SUCRE** • IV.2009; Franco L. leg.; pitfall trap for ants #27; 1 ♂, IAvH-E-254107 • San Miguel de Colosó, Cerro Colosó; 09°29'3.47"N, 075°22'6.69"W; 220 m alt.; 07.VIII.2012; Barraza J. leg.; pitfall trap with human feces S1T1; tropical dry forest; 1 ♂, IAvH-E-215215 – **TOLIMA** • Armero, Centro universitario regional norte de la Universidad del Tolima; 05°00'8.65"N, 074°54'49.66"W; 309 m alt.; 21–28.VII.2015; Ariza G., Cañon J. leg.; pitfall trap Bp1T7 m2; 2 unsexed, MENT-UT • Armero, Centro universitario regional norte de la Universidad del Tolima; 04°59'55.54"N, 074°54'19.45"W; 305 m alt.; 02–07.VI.2015; Ariza G., Cañon J. leg.; pitfall trap Bs2 m1; 6 unsexed, MENT-UT • Armero Guayabal, Granja UT; 05°00'07.43"N, 074°54'27.84"W; 285 m alt.; IV.2018; Light trap; Clavijo J. leg.; 1 ♀, CECC-ALT • Tolima, Armero Guayabal, Méndez, Hacienda Cardonal; 05°05'38"N, 074°46'39"W; 300 m alt.; 01–30.IX.1995; Escobar F. leg.; pitfall trap with human feces; 1 ♀, IAvH-E-021994 • Líbano, Finca Reserva Santa Librada, Vereda La Honda; 04°52'28.9"N, 075°01'13.3"W; 1103 m alt.; 29.VII.2016; Medina C.A. leg.; pitfall trap with human feces T1; secondary forest; 1 ♀, IAvH-E-215229 • Líbano, Finca Reserva Santa Librada, Vereda La Honda; 04°52'28.9"N, 075°01'13.3"W; 1103 m alt.; 29.VII.2016; Medina C.A. leg.; pitfall trap with human feces T2; Secondary forest; 1 ♂, IAvH-E-215227 • Líbano, Finca Reserva Santa Librada, Vereda La Honda; 04°52'28.9"N, 075°01'13.3"W; 1103 m alt.; 29.VII.2016; Medina C.A. leg.; pitfall trap with human feces T3; secondary forest; 1 ♂, IAvH-E-215230 • Líbano, Finca Reserva Santa Librada, Vereda La Honda; 04°52'28.9"N, 075°01'13.3"W; 1103 m alt.; 29.VII.2016; Medina C.A. leg.; pitfall trap with human feces T6; secondary forest; 1 ♂, IAvH-E-215232 • Honda, Tambor, B. Berlín; 05°10'5.3"N, 074°48'22.9"W; 286 m alt.; 19.X.2015; Torres E. leg.; pitfall trap with human feces S1-T5; edge of forest; 1 ♂, IAvH-E-213551 • Honda, Tambor; 05°10'5.3"N, 074°48'22.9"W; 286 m alt.; 20.X.2015; Torres E. leg.; pitfall trap with human feces S1-T2; edge of forest; 1 ♀, IAvH-E-213549 • Honda, Tambor; 05°10'5.3"N, 074°48'22.9"W; 286 m alt.; 20.X.2015; Torres E. leg.; pitfall trap with human feces S1-T3; edge of forest; 1 ♀, IAvH-E-213551 • Honda, Tambor; 05°10'5.3"N, 074°48'22.9"W; 286 m alt.; 20.X.2015; Torres E. leg.; pitfall trap with human feces S1-T6; edge of forest; 2 ♂, IAvH-E-213552–53 • Honda, Vereda El Triunfo, Hacienda El Triunfo; 05°09'13.7"N, 074°48'16.0"W; 401 m alt.; 16.X.2015; Cárdenas-Bautista J., Torres E. leg.; pitfall trap with human feces BTrT5; secondary tropical dry forest; 1 ♂, IAvH-E-215233 • San Sebastián de Mariquita, Vereda Tambor, Finca Tambor; 05°09'55.0"N, 074°48'37.9"W; 320 m alt.; 19.X.2015; Medina C.A. leg.; pitfall trap baited with centipede; Forest; 1 ♀, 3 ♂, IAvH-E-172764–67 – **VALLE DEL CAUCA** • 950 m alt.; I.2001; García R. leg.; fish bait; Forest; 2 ♂, MUSENUV 29369–70.

Records in literature. COLOMBIA – **ANTIOQUIA** • Turbo – **NORTE DE SANTANDER** • 3 km N of Chinacota.

Identification. According to Ocampo (2006a), this species can be distinguished from other *Anaides* species by the following characteristics: clypeus medially with a tubercle (Figure 1A); pronotum medially with two longitudinal carinae (Figure 1A); base of elytra with two tubercles, one shorter near the humeral area, and another elongate between the humeral area and the inner suture (Figure 1A); epipleuron almost equal in width from base to apex (Figure 1B). Also, the parameres and spiculum gastrale are diagnostic: parameres short (less than 1/3 the length of phallobase), with rounded apex, and slightly downward curved apically (Figure 1C–E); spiculum gastrale symmetric, subtriangular, lateral arms sinuous (Figure 1F–G).

Distribution. Panama, Colombia, Venezuela, Trinidad and Tobago, Guyana, Suriname, and Brazil (Ocampo 2006a). The species has been predominately recorded in dry areas of these countries, with only a few

records from humid forests in southeastern Venezuela, Guyana, Suriname, and Brazil (Ocampo 2006a). However, in Colombia all the known records are from the dry areas of the Caribbean plain, the inter-Andean valleys of Cauca and Magdalena, and the Orinoquía Region (Figure 4). We present for the first time *A. fossulatus* from moist forests of Department of Chocó (Colombia).

Anaides longeciliatus Balthasar, 1938

Figures 2, 4

New records from the Chocó Biogeographic Region of Colombia (10 examined specimens). COLOMBIA – **CHOCÓ** • Alto Baudó, Corregimiento Chachajo, Quebrada Muertero; 05°42'18.738"N, 76°59'32.474"W; 283 m alt.; 06–08.VII.2022; Hurtado H.S., Rentería Y., Murillo D., Rengifo L., Cárdenas-Bautista J.S., Palacios R. leg.; pitfall trap with human feces #s1p7 72h; rainy central forest; 2 ♂, IAvH-E-256911–12 • Alto Baudó, Corregimiento Chachajo, Quebrada Muertero; 05°42'20.232"N, 76°59'33.659"W; 277 m alt.; 06–08.VII.2022; Hurtado H.S., Rentería Y., Murillo D., Rengifo L., Cárdenas-Bautista J.S., Palacios R. leg.; pitfall trap with human feces #s1p8 72h; rainy central forest; 1 ♀, 5 ♂, IAvH-E-256913–18 • Alto Baudó, Corregimiento Chachajo, Quebrada Muertero; 05°42'15.059"N, 76°59'46.934"W; 120 m alt.; 06–08.VII.2022; Hurtado H.S., Rentería Y., Murillo D., Rengifo L., Cárdenas-Bautista J.S., Palacios R. leg.; pitfall trap with human feces #s2p7 48h; rainy central forest; 2 ♀, IAvH-E-256909–10.

Identification. According to Ocampo (2006a), this species can be distinguished from other *Anaides* species by the following characteristics: clypeus medially with a tubercle (Figure 2A); pronotum medially without longitudinal carinae (Figure 2A), if present, poorly developed and discontinuous; epipleuron almost equal in width from base to apex (Figure 2B). Also, the parameres and spiculum gastrale are diagnostic: parameres short (less than 1/3 the length of phallobase), with rounded apex, slightly downward curved apically, and abruptly dorsoventrally thinned in the apical third (appreciable in lateral view) (Figure 2C–E); spiculum gastrale symmetric, long rectangular, lateral arms almost straight (Figure 2F, G).

Distribution. Costa Rica, Panama (Ocampo 2006a), and Colombia (**new country record**). *Anaides longeciliatus* was known only from Costa Rica and Panama but is now reported for the first time from Colombia, in the Department of Chocó (Figure 4).

Anaides planus Ocampo, 2006

Figures 3, 4

New records from the Chocó Biogeographic Region of Colombia (3 examined specimens). COLOMBIA – **CAUCA** • Isla Gorgona, Parque Nacional Natural Gorgona, Sendero La Chonca; 02°58'03.4"N, 78°10'45.2"W; 14 m alt.; 01.III.2011; González R. leg.; manual collection; 1 ♀, MUSENUV 3296 – **CHOCÓ** • Alto

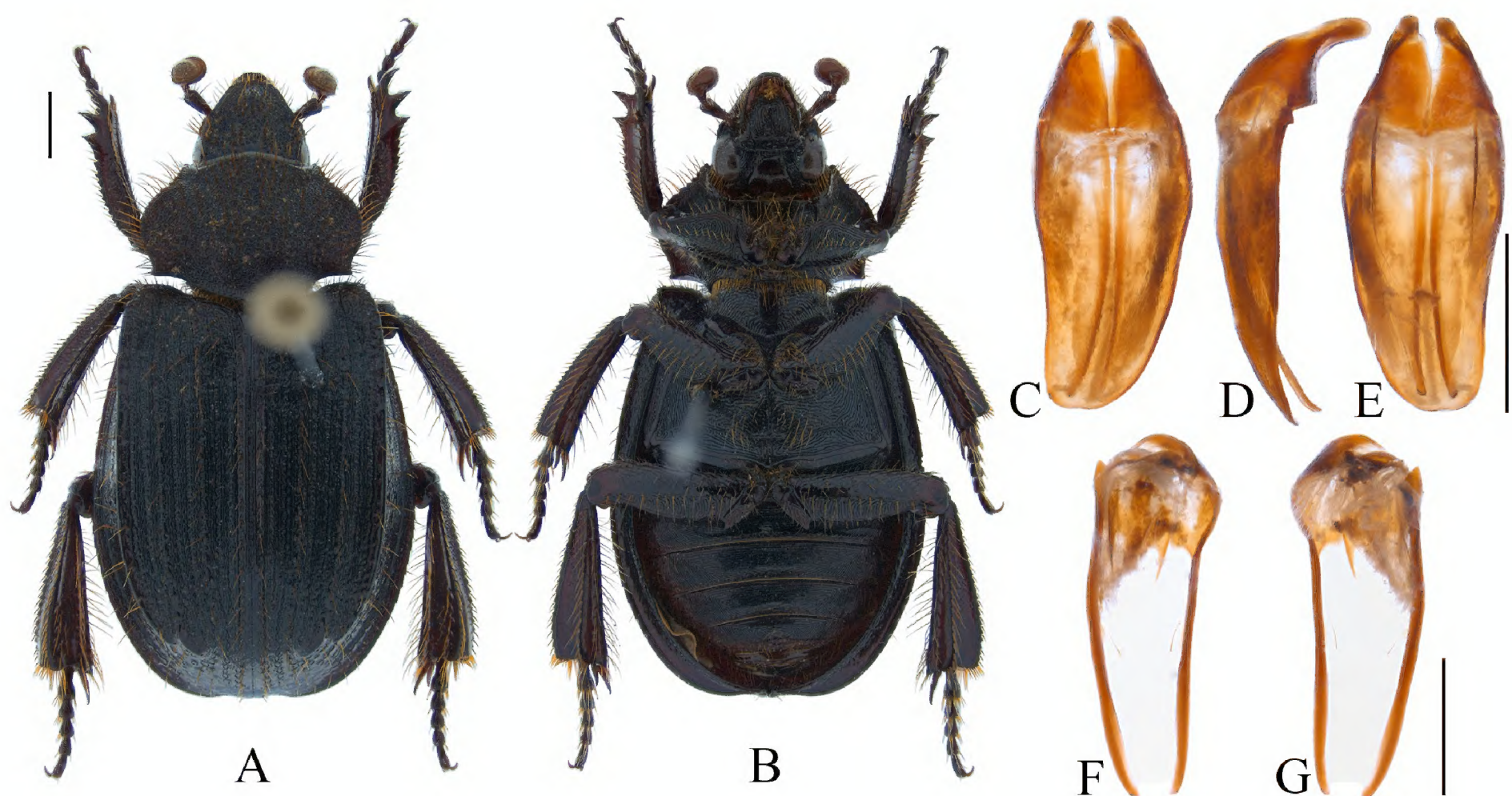


Figure 2. *Anaides longeciliatus* (IAvH-E-256920). **A.** Dorsal view. **B.** Ventral view. **C.** Aedeagus, dorsal view. **D.** Aedeagus, lateral view. **E.** Aedeagus, ventral view. **F.** Spiculum gastrale, dorsal view. **G.** Spiculum gastrale, ventral view. Scale bars: 0.5 mm.

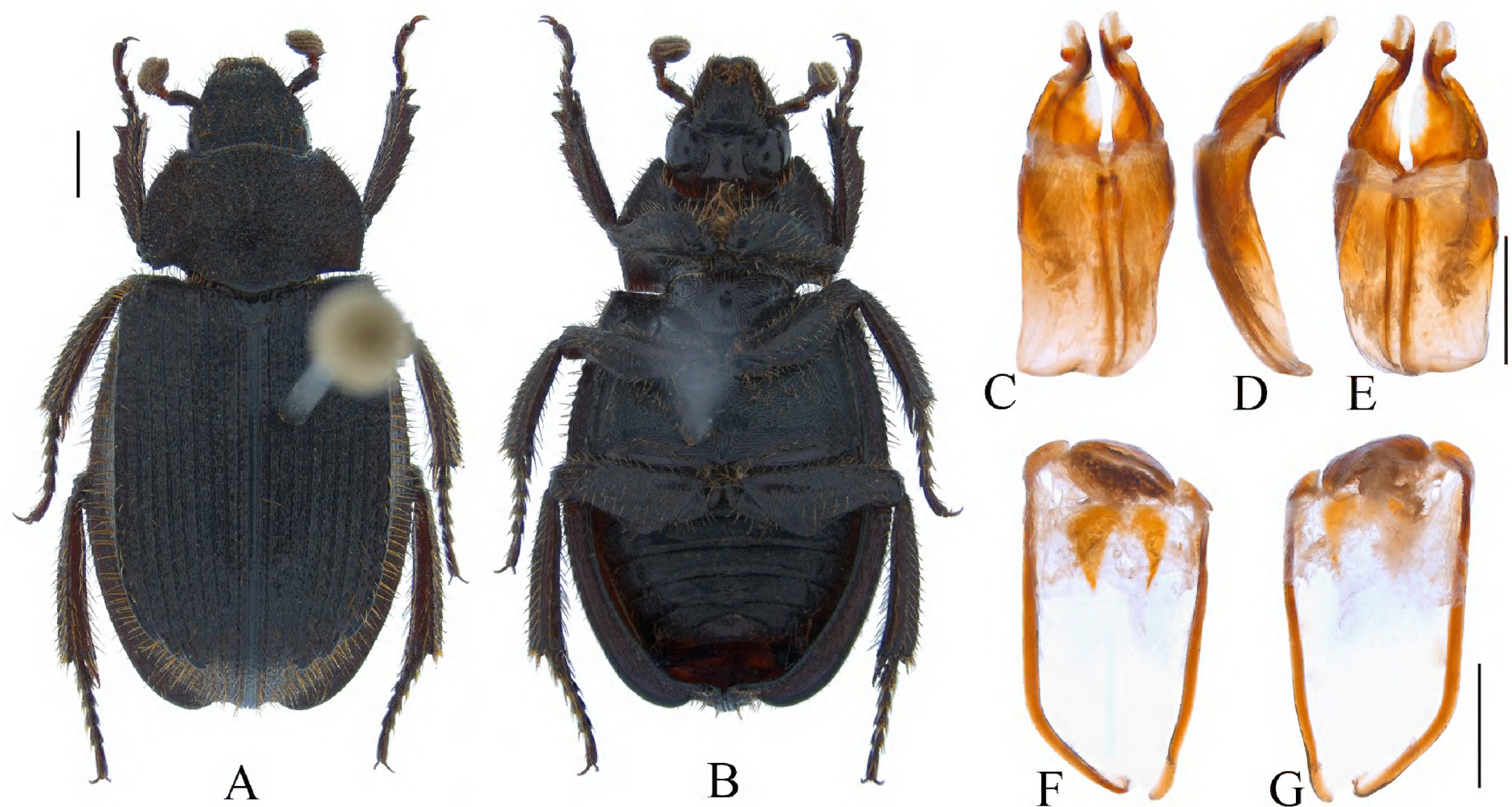


Figure 3. *Anaides planus* (IAvH-E-256907). **A.** Dorsal view. **B.** Ventral view. **C.** Aedeagus, dorsal view. **D.** Aedeagus, lateral view. **E.** Aedeagus, ventral view. **F.** Spiculum gastrale, dorsal view. **G.** Spiculum gastrale, ventral view. Scale bars: 0.5 mm.

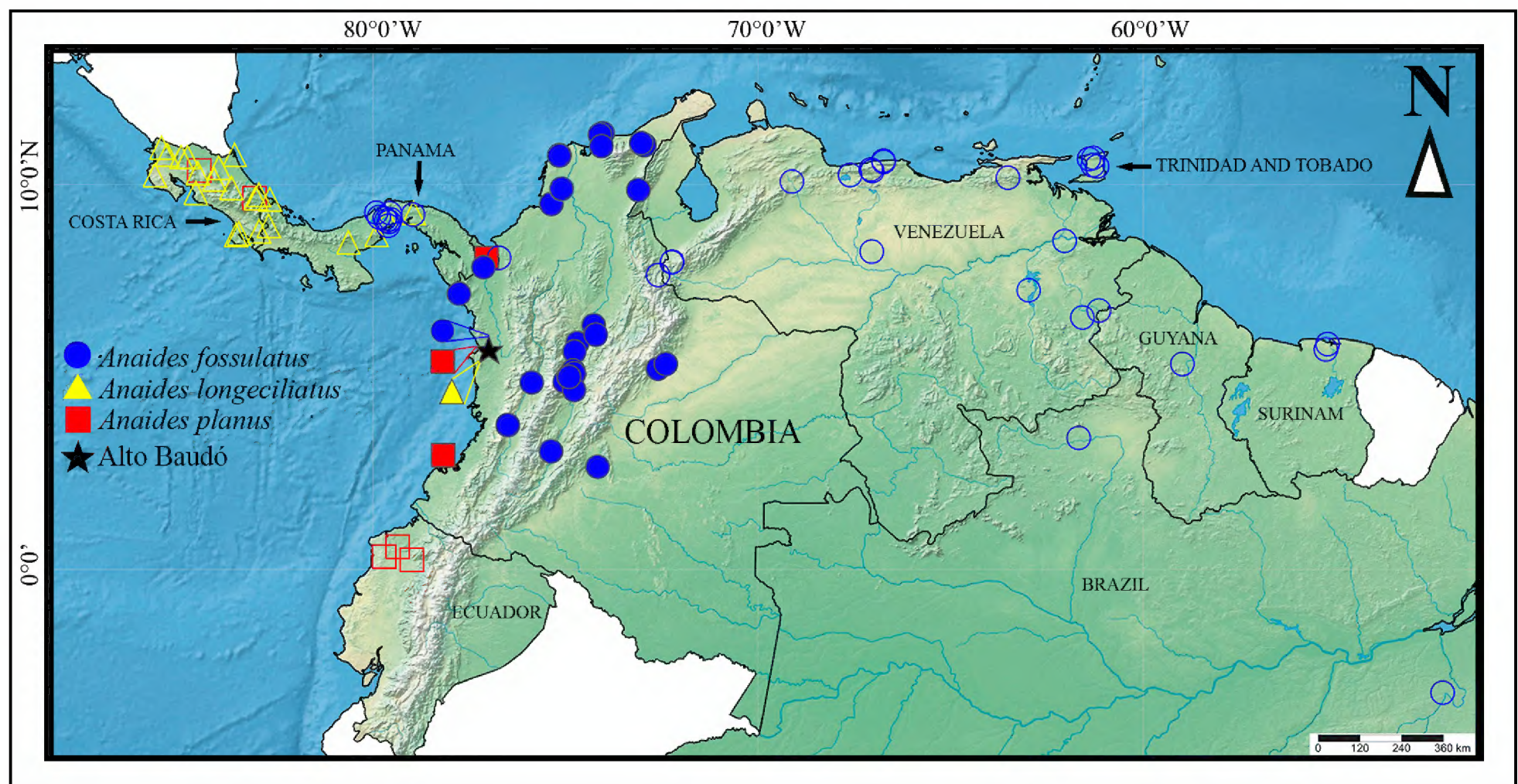


Figure 4. Distribution of *Anaides fossulatus*, *Anaides longeciliatus*, and *Anaides planus*. Solid figures are for new records and empty figures are for records from Ocampo (2006a).

Baudó, Corregimiento Chachajo, Quebrada Muertero; 05°42'15.059"N, 76°59'46.934"W; 120 m alt.; 06–08. VII.2022; Hurtado H.S., Rentería Y., Murillo D., Rengifo L., Cárdenas-Bautista J.S., Palacios R. leg.; pitfall trap with human feces #s2p7 72h; Rainy central forest; 1 ♂, IAvH-E-256907 • Unguía; 08°05'02.19"N, 77°03'10.22"W; 12 m alt.; 20.XI.2009; Neita-Moreno J. C. leg.; pitfall trap with human feces; border of forest and paddock; 1 ♀, IAvH-E-215940.

Identification. According to Ocampo (2006a), this species can be distinguished from other *Anaides* species by the following characteristics: clypeus medially without a tubercle, but clypeal surface slightly convex (Figure 3A); pronotum medially without longitudinal carinae (Figure 3A); base of elytra with two tubercles,

one shorter near the humeral area, and another elongate between the humeral area and the inner suture (Figure 3A); epipleuron increasing in width from base to apex (Figure 3B). Also, the parameres and spiculum gastrale are diagnostic: parameres short (approximately 1/3 the length of phallobase), with apex strongly dilated, slightly downward curved apically, and strongly dorsoventrally compressed (Figure 3C–E); spiculum gastrale asymmetric, quadrangular, lateral arms almost straight, but the left arm inward curved in the apical third (Figure 3F, G).

Distribution. Costa Rica, Ecuador (Ocampo 2006a), and Colombia (**new country record**). Neita-Moreno (2006) reported the species to the Department of Chocó, Colombia, as *affinis* (aff.), thus, we confirm its presence for that Department, and for the continental island of Gorgona, in the Department of Cauca (Figure 4).

DISCUSSION

Previous to our work, *Anaides fossulatus* was reported from a few of localities in dry areas of Colombia, such as Caribbean Region, inter-Andean valleys, and the Orinoquía Region (see Ocampo 2006a). These new records from the humid forests in the Colombian Chocó open the question about the habitat preferences of this species. Future monitoring in these and other localities throughout the Chocó Biogeographic Region are needed to confirm if the species is common or rare in this ecosystem.

Anaides planus was reported with a disjunct distribution in Panama and Ecuador by Ocampo (2006a), showing a clear pattern of presence in moist forests of southern Central America and the Chocó Biogeographic Region of Ecuador. Then, Neita-Moreno (2006) reported the species for the Department of Chocó (Colombia), but with taxonomic uncertainty and from an imprecise data locality. Our new records from the Chocó Biogeographic Region of Colombia, partially fill the gaps in its distribution.

By far, the most important records presented by us are those of *Anaides longeciliatus*. The species was previously recorded only from Costa Rica and Panama, but now we report it from the Department of Chocó in Colombia, extending its distribution of about 450 km (in a straight line) from the nearest locality in Panama.

Another important contribution presented herein is the illustration and use of the spiculum gastrale to identify species by showing their shapes, which can be even more different than the parameres. In addition, the endophallus of the species present some sclerites and raspules, in which the shape of the apical sclerites and disposition of the raspules are apparently useful to define species. However, we choose to abstain from making any strong conclusions about the use of these genital characters in species identification because we were only able to study them in three species, and not many individual specimens. We encourage others to develop further studies into the utility of these characters.

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ADDITIONAL INFORMATION

Conflict of interest

The authors declare that no competing interests exist.

Ethical statement

No ethical statement is reported.

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Author contributions


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Data availability

All data that support the findings of this study are available in the main text.

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